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NEW RATES FOR REPELLANTS IN DIRECT SEEDING

Lower dosages are now feasible for two of the three bird repellants used widely in direct seeding the southern pines. The recommended dosage for Arasan-75 is being reduced from 15 to 10 percent (from 15 to 10 pounds per 100 pounds of seed) and that for sublimed anthraquinone from 25 to 15 percent. The 15-percent dosage prescribed for Arasan (50 percent thiram) remains unchanged.

Both Arasans and anthraquinone have been used on more than 100,000 acres of direct seeding with longleaf, loblolly, and slash pines in recent years. All have been about equally effective when used correctly. At the new rates of application, the costs of chemicals for coating one pound of seed are 13 cents for Arasan and Arasan-75, and 19 cents for anthraquinone. Though anthraquinone is slightly more expensive than Arasan, it is preferable for hand seeding operations because it causes little or no irritation to personnel exposed to the dust. The Arasan compounds result in considerable discomfort when exposure is prolonged.

Because Arasan-75 gives a smoother coating of the seed than Arasan, it is preferred for aerial sowing where a steady flow of seed through the hoppers is essential. --H. J. Derr.

INUNDATION DAMAGE TO UPLAND HARDWOODS

Yellow-poplar suffered the greatest mortality of six upland hardwood species flooded during the summer of 1958 by a flood-control detention reservoir near Oxford, Mississippi.

From 15 to 25 trees each of pole-size and larger white and southern red oak, yellow-poplar, red maple, blackgum, and sweetgum were observed. Flooding was continuous (once it began) for the periods during which individual trees were observed. A waterstage recorder and topographic coordinates were used to determine the aggregate period and depth of flooding for each tree.

All yellow-poplars flooded for as long as 19 days died, and those flooded for as long as 10 days were damaged. Sixty percent of the red oak and 62 percent of the white oak flooded for as long as 21 days died, and all red oak flooded for 30 days were damaged. All of the blackgum, 86 percent of the sweetgum, and 73 percent of the red maple survived after being inundated for at least 21 days.--H.L. Williston.

PLANTED PINES SHOW MORE INITIAL HEIGHT GROWTH THAN SEEDED PINES

On the Cumberland Plateau of central Tennessee, loblolly and shortleaf pine nursery stock grew twice as tall the first year in outplanting as did direct-seeded pines of the same species. Both the seeded trees and the nursery stock were the same age from seed.

In March 1957 disked areas on converted hardwood sites near Sewanee, Tennessee, were direct-seeded with north Alabama loblolly seed and southeastern Tennessee shortleaf seed from the 1955 crop. Intermingled but undisked plots were hand-planted in March 1958 with 1-0 nursery stock. The seed sources of the planted stock were north Alabama for loblolly and north Georgia for shortleaf. This seed was also from the 1955 crop.

At the end of the first growing season the average height for the seeded pines was 0.2 foot for the shortleaf and 0.3 foot for the loblolly, while comparable average planted height of the nursery stock was 0.3 foot for both species. After a growing season in the field shortleaf nursery stock averaged one foot in height and the loblolly 1.3 feet. At the end of the second growing season the direct-seeded trees were about half as tall--averaging 0.56 foot for the shortleaf and 0.64 foot for the loblolly.

Survival for all trees was in excess of 90 percent. If second-year survival of the direct-seeded trees is expressed as percent of the number surviving the first growing season, there is no statistically significant difference in survival between the seeded and the planted trees.--T.A. Harrington.

BHC TOTAL DIPS TOXIC TO PINE SEEDLINGS

Dipping pine planting stock in BHC suspensions reduces damage from the pitch-eating weevil (*Pachylobius picivorus* Germ.), but the chemical should be kept off the roots of the seedlings.

In east Texas, dipping only the tops of loblolly planting stock in suspensions containing from 0.2 to 2.0 percent gamma BHC did no appreciable harm. Total dips of tops and roots in 1.0 and 2.0 percent BHC, however, reduced height growth during the first growing season, and the 2.0 concentration killed some seedlings. After 2 years, seedlings that had received total dips in 1.0 or 2.0 percent BHC were still significantly shorter than those that had received top dips or been treated in lighter concentrations. The total dips also caused some additional seedling deaths during the second year.

Top dips of 1.0 percent gave good protection against weevils.--R.C. Thatcher.

2,4,5-T CONCENTRATIONS FOR TREE INJECTION IN THE ARKANSAS OUACHITAS

Relatively heavy concentrations of 2,4,5-T in diesel oil were required to obtain adequate first-year crown kills of hardwoods in the Ouachitas of Arkansas, when the chemical was applied with a Little Tree Injector. The hardwoods were cull white oaks three to six inches d.b.h. The dosage was one injection (about ¼ ounce of mixture) per inch of d.b.h.

At the end of the first year, crown kills of 59, 69, and 89 percent had been obtained respectively from concentrations of 24, 36, and 44 pounds acid per hundred gallons of mixture. The chemical was a 2-ethyl-hexyl ester of 2,4,5-trichlorophenoxyacetic acid, 4 pounds acid equivalent per gallon. Counting stems that were heavily damaged, in addition to those killed, performance of the three concentrations was 73, 79, and 95 percent respectively.

Sprout control was 100 percent by all treatments.--J.L. Smith.

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*Copies are available at the Southern Station.